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HINTS AND METHODS FOR THE USE OF TEACHERS.

(Continued.)

PENMANSHIP.*

In teaching to write, more than ordinary attention is paid to beginners. An hours attention to a pupil when first beginning to write, is worth a weeks, after he has contracted a careless or an improper habit of managing his pencil or pen. *To teach is easy, but to unteach is difficult*, is of general application; but to *writing* it is particularly applicable. Before the children, therefore, are permitted to use the pen, or even pencil and slate, the writing master teaches them how they should be held; the proper movement of the hand; and the most approved position of the body.

When the children are thoroughly instructed in these preliminaries, they commence with the elements of writing, and in classes.

All the children in the class write the same element, letter, or copy. They commence at the same moment, and are expected to finish about the same time; and as soon as one line is written, an examination takes place. The pupils are directed to compare what they have written with the copy before them, and to find out the defects in their imitation of it. The master then takes up one of the slates, or copy-books, and calls upon its owner, or any of the other pupils, to state what is defective in this, or that letter; and the answer will probably be that it is either 'too long,' or 'too short,' or 'too wide,' or 'too close,' or 'too much,' or 'too little sloped.' The master will then, very likely observe, "I am glad to find that you know how the letter should be shaped, and proportioned; by comparing what you write with the copy before you, and by endeavoring to make every line, and every letter, BETTER than the preceding one, you will soon become good writers. And let me tell you, if you do not endeavor to make every line, and every letter better than the preceding one, you are not learning to write at all—you are merely covering paper with ink." Always keep in mind that it is *quality*, not *quantity*, that is required in writing. Careless writing is not merely a waste of time and paper; it is laying the foundation of a *bad method* of writing, which, if once confirmed, it will be impossible to remedy.

It is evident that children so initiated, and so instructed by the master in their first attempts at writing, will, as the old copy says,

"By diligence and care, soon learn to write fair."

Writing in classes has many advantages. It

produces among the children an emulation, or rather a desire of, excelling; and it enables the master to teach ten or fifteen pupils almost as easily as one. It is also a more social way of teaching. Commencing each line at the same moment, and at the word of command, tends to produce that uniformity and order, so pleasing, and so necessary in large schools.

The following directions and suggestions are taken from Davison's *Exposition of the Principles and Practice of Writing*.

Pen-Holding.

The pen when properly held, is about one-half an inch below the end of the second finger, resting against the side of it, near the nail—passing under the first finger, the second rest is against the fore finger, a little forward of the knuckle-joint upon the hand. The upper side of the thumb as it presses the pen, should be even with the first joint above the end of the fore finger. The first and second fingers and thumb, when the pen is held, should stand with so much spring upon the line for writing, as to readily move upward one inch and downward one inch. The first and second fingers receive their support in the oblique motions, from the second joints of the third and fourth fingers to their ends, which lightly rest upon the paper. The third and fourth fingers are bent under from their second joints, so that the breadth of about one finger intervenes between the second and third fingers, and a little space between the third and fourth fingers.

The left side of the writer should be next to the desk; the left arm resting upon the same, and the first three fingers placed upon the book or paper, to hold or move it at pleasure. The body to have so much inclination over the desk, as to place the learner the same distance from the writing, as a book is held from the eyes in the act of reading. The paper or book to lie parallel with the edge of the desk, and the fore arm to lie about one-half its length upon the desk; the wrist slightly touching the paper in slow writing,—raised about a quarter of an inch in rapid—the ends of the third and fourth fingers lightly touching to support the hand. The hand when placed for writing, to give it a proper and uniform slope, is nearly upon a straight line with the inside of the fore arm. The feather-end of the pen should point over the edge of the shoulder.

The pen should be held about two minutes, then laid down and taken up as before, and again held two minutes; and thus the learner must continue to lay down and take up the pen, each time holding it about two minutes, until it can be taken up and properly held, with the same ease as an experienced writer can do it. This exercise with very young beginners should be continued at least one week. The next thing is to

*See also Connecticut Common School Journal, Vol. I, p. 54; do. 135. Vol. II, p. 93, 94; do. 182; do. 234; do. 253; do. 300. Vol. III, p. 45; do. 66.

strengthen and familiarize the hand to the proper position, so as to sustain it while in the act of Writing. For this purpose, the learner must be exercised in brisk motions upon the lateral, oblique and oval movements from right to left, and from left to right. The lateral movement, (keeping the wrist sustained so as not to move from right to left, or from left to right,) is made by turning the whole fore arm on the point of rest, upon the edge of the desk. These movements must be alternately dwelt upon five minutes through the time of practice. With beginners, this practice should be continued for two or three weeks, or at least, until the hand has become firm in its action, and has no longer any tendency to fall over to the right, or the fingers to move from their proper place. The importance of correct pen-holding is such as to make it necessary to urge the foregoing instructions without the least relaxation.

Pen-Making—Pen-Mending.

To know how to make a pen is almost as necessary as to know how to use it. But to be almost constantly mending pens to produce delicate hair-line writing, (except for ornamental purposes,) is not only useless, but a perfect waste of time. A pen, well made or mended, ought to last nearly half a day in constant practice. It not only requires more exertion to write with a very fine pointed pen, but prevents a person from continuing a uniformity, without mending the pen every line, and from writing a free, bold and commanding hand. It will then be stated here as a rule to be constantly kept before the mind, that the excellence of writing, for all the useful purposes of life, does not consist in fine lines, but in correctly formed letters, properly joined together, by a free and commanding use of the pen. Until a person can take up a pen, that is in any thing like an ordinary condition, and write what would be considered a good hand by competent judges, he cannot be pronounced a proficient in the art. It is, therefore, particularly enjoined upon both teacher and pupil, that the pens in all the early practice upon paper, be no better than what is considered common. Make the goodness of writing to depend upon clearness and correctness in the formation of letters, and a beautiful regularity and ease, throughout each word, and not upon the fineness of lines.

After the consideration of a very sharp knife, the art of pen making should be commenced, by drawing a little pine stick repeatedly down to delicate points. This practice should be continued for two or three weeks, or until the most delicate point can be repeatedly formed upon the stick, by the learner. The benefit of this practice is twofold. First, the stick being more solid than a pen, a more sustained and steady action is given to the movements of the hand; secondly, it saves an immense number of quills. In schools, this latter particular is an object of much consideration.

After then, that delicacy of action is acquired, so necessary in pen making, the learner will proceed in the practice, by taking a quill, and attend to the following particulars: First, preparing, holding and cutting quill. If the quill is unclarified, scrape the barrel with the back of the knife

until the outward integument is removed. Hold it between the thumb and fore-finger of the left hand, letting it rest upon the second finger. Point the barrel towards you. Cut off a little from the back and under side in an oblique direction; then cut off a portion from the under part of the barrel, about an inch in length, and half the depth of the barrel. Secondly, scrape the back of the barrel where you intend the split, more or less, according to the thickness of the quill. Turn the quill again toward you, and make a short cut in the middle of the back with the knife; place the quill between the thumb and fore-finger of the left hand, as high above the end as you intend the split to be, then with the thumb nail of the right hand give it a sudden stroke, which will cause it to proceed directly upward. Care must be taken that the split be perfectly clear. The learner keeping in mind, that the split in a made pen is between one-eighth and one-fourth of an inch in length, will proceed to draw down the right side of the quill to a fine point against the opposite side, then the left side to correspond, making both sides as they meet, a perfect point. To nib it, place the point upon the left thumb nail, holding it with the under part down between the fore-fingers, and for a common pen cut it off square and pretty broad; for a delicate pen, thin it from a little distance up, down to the point, then with the knife set perpendicularly and obliquely, so as to make the right hand side of the nib the longest, with a sudden pressure cut off the point. A pen made according to the foregoing directions may be mended two or three times without splitting it anew. To make a new split, scrape the back of the quill again, to the height you intend it to be, and then proceed as before.

Steel Pens.

The somewhat extensive use of this description of pens, makes it necessary to offer a few remarks in regard to them. They certainly save the time required in mending pens, and secures a great degree of uniformity in writing.

The steel pen requires to be a little differently used from the quill pen. With a new one, the nib must be damped in the mouth previous to being dipped in the ink. It should not be held as vertical as the quill pen. In its use there must be less pressure and of uniform steadiness, or else it is likely to catch in the paper, sprinkle and blot. With a little attention any one may learn to use them in a short time.

Written Copies.

The superiority of written over copperplate copies, for instruction, must be obvious to every one. The latter is the studied effort of an engraver; each letter being drawn out with the utmost precision, and great care taken to have succeeding turns and letters of exact uniformity. The former is a ready execution with the pen, having all those peculiarities which make it possible to equal them. The pupil soon finds that the examples in copperplate print cannot be equalled, and no more than partially imitated, and he lays them aside with indifference; if referred to at all, but for the reading, and not to acquire a free formation of letter.

DRAWING.*

Drawing should be taught simultaneously with writing; that is, as soon as the pupil can hold a pencil. It should be practised, at first, on the slate, on which the very youngest child may be usefully employed, in forming vertical, horizontal, and oblique lines, triangles, squares, rectangles, &c. Then might follow the division of these lines, by the eye, into two, three, four, five, six, &c., parts. The pencil should be held in the same manner as the pen. While the pupils use slate-pencils, they should have quills or tin tubes, as holders, and their pencils should be sharp enough to make fine lines.

As soon as the child can draw straight lines, join them neatly together, and divide them by the eye, into any given number of equal parts, he should commence drawing natural objects from some book. In 'Parley's Magazine,' vols. vi. and vii., will be found excellent directions, and a great variety of suitable objects. By the use of these, the teacher may instruct the young pupils, though she herself have no practical knowledge of the subject. But, as it is very desirable she should possess the practical, as well as theoretical, knowledge, she ought to teach herself, at the same time she is giving lessons to others.

The great object, however, should be, to enable the pupils to draw from Nature; and the following will probably be found one of the easiest modes of commencing such a practice. Let the pupil be seated at a table, directly before a window commanding a prospect of some suitable objects for drawing, such as a house or barn, with trees, fences, &c. The seat should be at such a distance from the window, that a sufficient number of objects to form a picture, may be seen through one pane, the sky filling one third or one half of it. The pupil should now be told to consider the pane as a picture, placed before him to copy; and let him use his best endeavors, to make a correct transcript of it on his slate or paper. At first, it would very much facilitate his operations, if three, four, or five threads were fastened horizontally, and as many vertically, across the pane, at equal distances, thus dividing it into nine, sixteen, or twenty-five squares, or rectangles. His slate or paper should be ruled with lines, representing that part of the sash around the pane. The first time he attempts such a drawing, perhaps it would be well to divide his slate or paper into squares, or rectangles, corresponding to those of the pane. When every suitable object, that can conveniently be seen from the windows, has been copied, his table can be placed in the fields, and a small frame placed on it, to represent the pane. All such artificial aid, should, however, soon be laid aside, and the pupil accustomed to rely on his eye alone, without other assistance than a piece of paste-board on his hat or his knee.

The chief difficulty, in drawing from Nature, lies in the fact, that we see things neither in their true situation, nor form, nor proportionate size. The appearance of the landscape is chiefly the work of our own imagination. Take, for in-

stance, the size of an object. If we look at a house, about half a mile off, and when we turn away, some one ask, how big it appeared to us, compared to some object in the room, the answer will be very wide, indeed, of the truth. If again, we were asked, "Did the house appear as large as your thumb nail, held at arm's length?" we should be apt to laugh, heartily, at the absurdity of the question; and yet, in fact, it would fall short of the reality; for, if the thumb were held in that position, and so as to appear at the side of a moderate-sized house, we should find that, in reality, the nail appeared much the largest. As another instance, take the form of an object. The appearance which a cylinder really presents to us, is that of a plane rectangle; and the reason why it appears to us a cylinder, is our knowledge, acquired by the sense of feeling, that all apparent rectangles, shaded in that peculiar manner, are, in fact, cylinders. These facts should be pointed out to the pupil; and he should be told, that, in order to draw correctly, he must accustom his eye to see things as they are presented to it by Nature; that is, as the infant sees them.

When the child is expert in linear drawing, he may be taught shading; but perhaps this is too much to ask from the primary school, and may be postponed till he enters the central school. The primary teacher ought, however, by all means, to point out to her pupils the effects of shade in Nature, directing their attention, with that view, to stove-pipes, the outside of houses, trees, woods, clouds, &c.

If possible, this study should be carried forward in the central school, either by a regular drawing-master, or by the aid of books. But, even if it should not, the pupils will never regret the time spent in its practice in the primary school. Linear drawing is indispensable to many professions and trades, and highly useful in many others; and it would, if generally disseminated, be a powerful means of increasing the innocent enjoyments, good feelings, and good taste, of a community. As one of the means of preserving good discipline in a young family, it is invaluable. All children have more or less taste for it; and, if encouraged by a few instructions in school, it would provide interesting and quiet occupation for young children, in bad weather, in the evening, and at other seasons, whereby the idleness, mischief, and unseasonable noise and rudeness, which create so many bad feelings in families, might be much abated. In addition to its direct advantages, drawing is indirectly useful, by the discipline it gives to the eye, hand, powers of observation, memory, invention, and taste, and, in some degree, to the other mental faculties.—Palmer's Manual.

Linear Drawing in National Model School, (Ireland.)

"Without drawing, there can be no writing," was a saying of Pestalozzi's; and though it is somewhat extravagant, it is to a great extent true. Writing is, in fact, a species of linear drawing; and its acquisition is evidently facilitated by previous exercises in straight and curved lines, circles and ovals. Linear drawing

*See also Connecticut Common School Journal, Vol. I, p. 23; do. 25. Vol. II, p. 301.

too, besides imparting a facility and freedom of hand, so conducive to good writing, is calculated to give children such a precision and accuracy of eye, as will enable them to conceive clearly, and describe properly, the form and proportions of any object that may come under their observation. "A common peasant," as Mr. Wyse has observed, "will often have occasion to recollect a particular construction, either of a house, instrument, the appearance of a plant, &c. The artisan, the mechanic, absolutely require it. A stroke of the pencil is often worth, in accuracy, to say nothing of the economy of time, and labor, a thousand written words."

Linear drawing too, is not only useful, but necessary, in several other branches of education, as in Constructive Geography, Geometry, Mensuration, and Land Surveying. But enough has been said to show the utility of this branch of education; let us now give an outline of our method of teaching it. The *simultaneous* method is employed in teaching linear drawing. The master draws with chalk on a large black board, conspicuously placed, the *lines* or *figures* which constitute the lesson, and the pupils in large divisions, after receiving the necessary instructions, draw them on their slates, commencing *simultaneously*, as in the writing classes.

The first lessons are *right lines*, angles, *rectangular figures*; curved lines, circles, and ovals; then copies of the *cube*, *prism*, *cylinder*, *cone*, *sphere*; and finally, the combinations of these figures, as in *boxes*, *tables*, *chairs*; *mechanical* and *agricultural instruments*, *machines*, *buildings*, &c.

Linear Drawing in European Schools.

Linear drawing, as a branch of instruction, is much more cultivated abroad than with us, and pains are taken to give it a practical direction.—In various schools we found children able to produce excellent designs for furniture and cabinet work; and the superior beauty of Brussels lace we discovered to be owing to the simple fact, that every girl in a common free school, likely to be a lace maker, is instructed in the art of designing lace patterns.—*Dutch and German Schools.*

MAP DRAWING.

The practice of drawing maps, by each scholar in Geography is the most thorough method of impressing the subject on the mind, and almost the only method of precluding the vague conceptions which most children form of distance, boundaries, longitude, latitude, and the other leading features of this study. The following article is taken from Mrs. Willard's "*Geograp. for Beginners*"—a little work which has been overlooked by parents and teachers amid the more importunate claims of recent works.

In the opinion of the author, every instructor ought to make out, however rudely, a map of his own town; as it will much more forcibly impress upon the mind of the pupil the connection of the parts of the map, which signify objects, with the objects themselves. The author believes that children frequently learn maps, without thinking of the countries, rivers, &c., but merely of the map. Several passages of this work are inserted to aid them in acquiring juster views; but the best method unquestionably is to see that their first impression is correct. After having learned the map of the town, the teacher might be furnished with a map of his own state, and directing the attention of the pupil to the county in which he lives, ask, What town lies

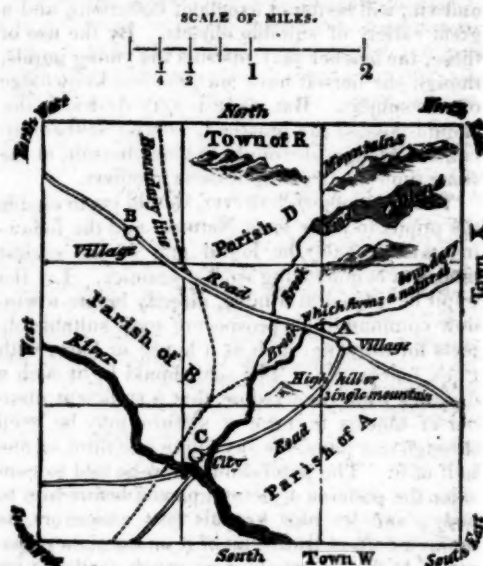
next to this on the north? On the east? On the south? On the west? Then the names of the counties might be learned, and their direction from the county in which the scholar lived, as from each other. Then taking the whole state, ask, (if there is a scale of miles :) How many miles is this state in length? In breadth? What are the principal towns, rivers, and mountains? &c. In New Hampshire and Vermont, introductory books have been published, designed expressly for the children of those states.

The directions as to map drawing given in a conversation between *Mother*, and *Frank*.

Mother. I will begin with sketching a little map of our town. I shall place myself to draw it, as I now place you. Your right hand, you see, is towards the place where the sun rises. Now tell me in what direction do you point with your right hand? In what with your left, and which way is your face?

Frank. My right hand is to the east, my left hand to the west, my face to the north, and my back, of course, to the south.

Mother. I will now commence drawing my map. My first step must be to lay down the scale of miles.



Frank. I have often remarked on maps a straight line, divided into equal parts, called a *scale of miles* but I never knew what it meant, or why it was placed there.

Mother. But you will find there is much information to be obtained from it.

A *scale of miles* for any map, shows what space on the paper is taken, for a mile, or for ten, one hundred, or any number of miles on that map.

I draw this line for my *scale of miles*. (See the map.) I divide it into two equal parts, and one of these parts I assume for a mile. That is, I will draw my map so that a space on it equal to this line, shall represent a mile of the place I am to delineate.

Frank. This is a very short line to represent all that distance.

Mother. But yet it is very common to draw maps so that a line shorter than this shall represent a hundred miles. Observe that I can take what line I please on my map to represent a mile. What would be the effect if I took a longer line than this, or a shorter one?

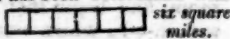
Frank. If you took a longer one, your map of the place would be larger; if a shorter one, smaller.

Mother. Right. This town is six miles square. So that the lines on the outer edge of my map must each be as long as six of this. That is, each side must be six miles in length by my *scale*.

Do you understand the difference between six miles square, and six square miles?

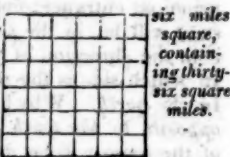
Frank. O my master in arithmetic taught me that. A place to be six miles square, must be six miles in length and six in breadth; but it will contain six square miles, if it is six miles in length and only one in breadth.

Mother. I find your teacher has been beforehand with me. I had prepared these little figures to show you the



six square miles.

difference. As we shall hereafter attend to the size of countries, by comparing their number of square miles, you must remember that they are equal to the length of a country multiplied by its breadth. The number of square miles



six miles square, containing thirty-six square miles.

in our town equals 6 the length, multiplied into 6 the breadth, which makes 36.

My next business will be to draw the boundaries of the three parishes into which the town is divided. As my face is to the north, I shall naturally put the northern parts of the town on the top of my map, the eastern on the right hand side, the southern on the bottom, and the western on the left hand. Boundaries are represented on maps by dotted lines. Observe those between the parishes.

Frank. But there are no lines, or walls, or marks upon the ground. How then do people understand where one parish ends, and another begins?

Mother. When the lands for a town are measured out, or as it is termed, surveyed, the Surveyors sometimes fix on some remarkable natural object, as a great tree or rock, or sometimes erect some monument, and reckon by straight lines from one to the other, and sometimes a range of mountains or hills, or a river, is taken as a line of separation. This is called a *natural boundary*. Some such are on our little map, and as I cannot give the boundary without them, I sketch them here, although I have not yet taken up the subject of rivers and mountains. Where are they?

Frank. But I should think the people, if there were no marks or walls on the ground, would after a while forget and so quarrel about their boundaries.

Mother. To prevent this, the surveyors make out maps, laying down the boundaries carefully. These maps geographers copy. You will see written on many maps, "compiled from actual survey." Written descriptions of boundaries are also given by the surveyors, which are deposited in places set apart in towns and states to receive public records. Boundaries between different nations, are matters which are settled by treaties, which are written agreements, which those nations make with each other. After all, you are not wrong in supposing that people will sometimes misunderstand and quarrel about them. Farmers go to law, and nations fight battles about their boundaries.

Any place is said to be bounded by those places which are next to it on all sides. Now let us bound our parish of D. Point with your finger, and show me in what direction are the towns and parishes adjoining.

Frank. West is parish B.; east is the town of X.; north are the mountains, and on the other side of them is the town of R.; and south is the parish of A.; but it is not exactly south.

Mother. No matter, that is sufficiently correct. Such cases frequently occur, and we must be content to come near the truth, if we cannot hit it exactly. But it is important to have a certain way or method in every thing we do. Then we are not at a loss where to begin, nor where we have ended. Therefore let your method in tracing boundaries be this. First mention the northern boundary, then the eastern, then the southern, and lastly the western. Whenever a river or mountain forms a part of the boundary, you should be particular to mention it in your description. According to this method, I would say the parish D. is bounded on the north by the town of R., east by the town of X.; south by the brook which separates it from parish A., and west by parish B. Sometimes in describing boundaries you will have occasion to use the terms, north-west, north-east, south-east, south-west. When you do, use them in the order in which I have just mentioned them. For example, if you were to bound parish A., which you perceive is triangular, or three sided, it would be proper to say it is bounded north-west by parishes B. and D.; east by the town of X., and south by the town of W.

Next, I will put down the rivers. Large rivers are represented on maps by double lines, and small ones by a single line. I will now draw the pond which is north-east of us. The boundary between the water and the land, which is called the *shore*, is drawn much like a river. Shades are drawn from this line towards the part which represents the water.

Next I will draw the island in the pond. What is an island? You must learn to express what you know; and

you already understand what an island is as well as any geographer can teach you.

Frank. Why, an island is land with water all around it.

Mother. Very correct. Here are two small ridges of mountains, which as they constituted a part of the boundary, I was obliged as I mentioned to sketch at first, one on each side of the pond, and these must be represented by a kind of shading. South-east of us is the high hill, which being a single elevation, must be represented by a small picture of a hill, with its sides shaded. Formerly such elevations were drawn with the tops pointing to the north, and the western side shaded, as I have drawn the high hill. At present the person drawing the map is supposed to be looking down upon the earth from some distance above it, and a hill or mountain is represented by shades running each way from its top, as I have drawn the mountains north-east of us.

We will next delineate our principal city and village; but how shall I proceed? You know I could not on this little piece of paper make a picture of every house.

Frank. I should think it would be as well to write the name of the village on the part of the map where it belongs, or to put down some little mark to represent it. If we understand that this signifies the place where there are many houses, it is as well as if the pictures of them were really made.

Mother. Very well. And this is actually the method of map-makers. Great cities, as well as small villages, are represented in maps, by placing their names on the part of the map which represents the spot where they stand. I shall represent our city of C. in the same manner as the villages of A. and B. A small circle is frequently placed to mark the site of a city or village more exactly.

Now let us draw the principal roads. Roads are delineated on maps by double lines.

If I divide my map into nine squares in this manner, the part of the town within the middle square is said to be the central part; that directly above it, the north part; that between the north and east parts, the north-east, and so on as described upon the map.

Our house stands on the road from the village of A. to the village of B., two miles and a half from the northern boundary of the town. Can you point out its exact situation on the map?

Frank. Now I see the use of the *scale of miles*. By that I can find out how much two miles and a half are on this map. I will cut a slip of paper long enough to reach quite across it. I will divide this into miles by the *scale*. I can then find the distance between any places on the map. Here is my paper. This is two miles and a half from the north line to the road, and this is the place for our house.

But could you not make many more objects on this map? You know the land is divided into farms; could you not make out the boundaries of each farm, and put down some little mark for the place where the farmer's house stands?

Mother. Not only is the parish divided into farms, but each farm is divided into separate fields. Do you think I could represent each one of these on my map?

Frank. I think not. For in that case the map would be nothing but boundary lines, and it would be so confused, that I could not select one from another.

Mother. You now see the correctness of what I remarked to you, that as the map is so very much smaller than the place, only the most important objects can be delineated. But the *scale* of this map is very large, compared with that of most of the maps which you meet.

Frank. Why, surely this is a very small map.

Mother. Yes, but it may be on a larger *scale* than one twenty times as large. One map is said to be on a larger *scale* than another, when a mile on the first is a greater distance than a mile on the second; and this must be determined by comparing their *scale of miles*. Here is a map of the United States, and here is its *scale of miles*. One mile on our *scale* is equal to about fifty miles on this; so that our map is on a *scale* about fifty times as large, although, as you perceive, it is a much smaller map. Suppose that on a paper the size of ours, I should now make a map of the state in which we live, which is at least a hundred times as large as this town, could I then represent this town as I have here represented it?

Frank. Why, if the map is to be no larger, and the state of which you are to make the picture is a hundred times as large, then the picture of this town must be a hundred times smaller than this which you have now drawn; and in that case if you should put as much upon it as you have here, it would be as much confused as this map would be, with all the farms and fields marked upon it. So I suppose that on such a map you could not place the boundaries of the par-

ishes, or the names of the villages. Indeed, on such a map, the town itself could hardly be noticed.

Mother. You are right: and the counties, each of which contains several towns, would not appear so large as the parishes on our map.

Mother. But you must not be discouraged if your first efforts are rude. You will soon become accustomed to the exercise, and will then find it a delightful occupation, and it will not only be the best way of acquiring an accurate knowledge of the shape and situation of the different parts of the earth's surface, but this exercise may be considered as first lessons in the elegant art of drawing, to acquire which, the first steps are to learn to measure distances by the eye, and to guide the hand as the eye directs. When this power is acquired, it may be applied as you please, in delineating the surfaces of countries, as in maps, or making pictures of trees, houses, &c.

Frank. It will be delightful to be able to make pictures of any thing, just as I please. Shall I get some paper and a lead pencil?

Mother. That would do, but I prefer your using a slate and pencil, or what is rather better still, a black board and chalk. The marks then show plainly, and rub out easily, and you can make your map large.

You may begin your map by making the lines which enclose it. Draw them twice as long as those on the first map; then your whole map and each separate state will appear four times as large; if you should increase the line three times, the whole surface of the map would be increased nine times, and so on.*

After fixing the size of your map by drawing the outside lines, next draw the lines which cross the map from top to bottom, and from side to side. These you perceive divide the map into squares, which will much assist you to keep the drawing correct, as you must take care to draw every part in its own square. Draw the outline of the coast, in the first place, and then the boundary lines of the states; but you need not set down their names. These I expect you to remember, and tell me as you point to the place itself. This I call explaining your map.

Frank. Are these lines which cross the map made merely to assist me in drawing my map correctly?

Mother. Oh, no. They are a kind of lines of the greatest importance to the whole science of geography. I can better explain them to you when we take up the map of the world. Those drawn from the top to the bottom are called *meridians*, or lines of *longitude*. Those from side to side *parallels of latitude*. Just enough of them are placed on this map to divide it into squares convenient for drawing; and hereafter, when you draw the other maps, as you are learning them, you may leave off a part of the lines of latitude and longitude, if you find that there are so many, that they make your task difficult.

When you come to take your next lesson, you must bring your map.

* That is, the size of the map increases, not simply as the bounding lines increase, but as the square of the number by which these lines are increased.

GEOGRAPHY.*

Before commencing geography, the pupils should be made acquainted with at least the four cardinal, or principal points of the heavens. This may be done in a few minutes. Take them out at twelve o'clock, and tell them that if they look toward the sun, their faces will be in the direction of the south, their backs toward the north, their right sides to the west, and their left toward the east; and that this is the case every day in the year at twelve o'clock. Or as children are liable to forget which of their sides in such a position, is turned to the east or west, let them connect these points with the part of the heavens in which the sun rises or sets;† and they will feel no difficulty in pointing to the east and west points of the heavens or horizon. Having fixed these points in their minds, let them return to the school-

* See also, Connecticut Common School Journal, Vol. I, p. 38, do. 43; do. 127; Vol. II, p. 32; do. 110; do. 161; do. 234; 253; 271; 300; 306—Vol. III, p. 68; 85.

room, and begin their first lesson on geography with it.—In which side or wall of the room is the principal entrance, may be asked; and the answer will be, in the south. Why? Because, it is in the direction of the sun at twelve o'clock. In which side is the rostrum, or master's desk? In the north. Why? Because that is the side opposite to the south. The east and west sides of the room will be as easily pointed out; and from the school-room the question may be extended to the play-ground, and to the entire premises. The pupils will readily name the streets that run along, or enclose the Education grounds on the south, north, east, and west. These streets they should be told, are the northern, southern, eastern, and western boundaries of the premises. The question may then be extended to the city generally; as, on which side of the city is Merriam, or Mountjoy square? Which side of these squares is nearest or farthest from us? In which direction is Sackville-street, from Marlborough-street? Do they cross at right angles, incline, or run parallel to each other? In what direction from Dublin does Kingstown, Lpcan, or Ashbourne, lie? Similar questions should be put regarding the counties bordering upon Dublin; and thus GEOGRAPHY is commenced as it should be, with TOPOGRAPHY.

The pupils should then be directed to draw a ground plan of the school-room on their slates. The dimensions should be stated to them,—or, which is preferable, they should be made to measure it themselves. As it is eighty feet in length, by fifty in breadth, they will see the necessity for reducing its dimensions, or for drawing it on a small scale. If the scale be an inch for every ten feet, the drawing will be eight inches by five. If reduced to a smaller scale, the drawing will, of course, be smaller in proportion. If the plan is to be on an inch for ten feet, let a line an inch long be drawn in a corner of it, for the scale by which the dimensions of the desks, &c., are to be measured, and laid down. The desks, which are sixteen in number, and about thirty feet long each, may be represented by parallel lines, three inches long, and one tenth of an inch broad; and the platform on which the master's rostrum stands, by a parallelogram, two inches by one and a-half inch; and in its proper position in the school-room.

[As an illustration, the reader can refer to the ground plan, of school-houses in this Journal, Vol. III, p. 16, 17, 53, 106.]

This is a rude representation of the school-room, as it would appear to a person looking down from the ceiling—or, in other words, it is a map of the school-room. The pupils may now be introduced to a map of the world, and they will readily conceive that it is intended to represent the earth as it would appear to the eye of a spectator raised at an immense distance above it. But as children naturally fall into the mistake of considering the Eastern and Western hemispheres, as plane and unconnected surfaces, they

† During the equinoxes only, the sun rises and sets in the east and west points of the horizon. Between the vernal and autumnal equinoxes, the sun rises and sets northward of the east and west points of the horizon; and between the autumnal and vernal equinoxes proportionally southward.

should be told that they are intended to represent a Globe divided into two equal parts, and placed beside each other on a flat surface—or, as the term *hemisphere* denotes, *half globes*. A familiar idea of this may be given to them by dividing an orange, or an apple, into two equal parts, and by placing them on a table, or any flat surface, with their edges in contact. Or the children may be told to conceive the two hemispheres to be compressed or flattened, so as to coincide with the plane—or, let them in imagination, place them with their backs in contact, and inflate them so as to form an entire sphere or globe. Having formed a correct and clear idea of the map of the world, they will easily conceive that the map of Europe, Ireland, or of any particular country, is intended to represent a portion, cut, as it were out of the general map of the world. A small wooden globe, divided into two equal parts, is used by us to give children correct ideas, both of the form of the earth, and of the two hemispheres, or map of the world. When the teacher is explaining the form of the earth, he holds the small globe in his hand; and when the two hemispheres into which it is supposed to be divided, he takes it asunder, and places the two half globes against the wall, with their edges in contact, and in *juxta-position with a map of the world*.

Latitude, Longitude, the Great and Small circles of the sphere, Meridians, Parallels, and Zones, which to children, appear as so many mysteries, may be simply and clearly taught by the use of such a globe. The circle formed by the junction of the two halves when united, may be regarded as the *First Meridian*, and, if a circle equidistant from the poles be traced, it will intersect it at right angles, and represent the *Equator*. The *Tropic, Arctic*, and other circles, may be easily added and explained; and if the globe be painted black, it will be easy to give an outline in chalk, of the relative position and extent of the great division of the earth's surface into continents and oceans. For example, ask the pupil to point to the spot where England should be, and if he recollects its latitude and longitude, he will, at once, determine its proper position. He will say, that, as it lies between the parallels of 50° and 56° N. latitude, it is more than half way between the Equator and North pole; and, of course, under the first meridian, which passes through the east of it. The position of Ireland, and Scotland, the one to the west, the other to the north of England, and forming a portion of it, may then be pointed to, or dotted in chalk; and so of other countries. In short, such a globe has, beside its peculiar advantages, all the utility of a blank or outline map. The cause of Day and Night, and the changes of the Seasons, may also be simply and clearly explained by means of two little wooden globes, such as are used in this establishment. One side of one of them is painted black, the other side white; and by turning it round before any object supposed to stand for the sun, the white and black sides of it alternately represent day and night. The different phases of the moon, may also be familiarly explained by small globes similarly painted; and the planetary motions generally. This we do,

and it is found a much easier, and therefore, a much better way of explaining them, than by means of an Orrery which is not only a complicated, but an incorrect* representation of the motions, magnitudes, and distances of the heavenly bodies. The simpler the contrivance, the better for illustration, and the nearer the resemblance to the simple, but sublime machinery of nature—to the works of that Great Being, who

"Bids seed-time.—harvest, equal course maintain,
Through reconciled extremes of drought and rain;
Builds life on death, on change duration founds;
And makes the eternal wheels to know their rounds."

Having taught the pupils as much of *Mathematical Geography* as will enable them to comprehend the figure, magnitude, and motions of the earth, their attention is directed to the great divisions into which its surface is naturally divided; or, in other words, they are introduced to *Physical Geography*.

We begin by giving them general views and leading ideas. Having made them observe that there is far more water than land upon the surface of the globe, we inform them that the proportion is probably as seven to three; or, in other words, that more than two-thirds of the earth's surface are covered with water. To fix this fact in their minds, it may be added, that the proportion between the land and water on the earth's surface, is much the same as between the diameter and circumference of a globe, or circle, that is, *something less than one-third*.

We then inform them that the entire surface of the earth, land and water included, is supposed to contain about one hundred and fifty millions of geographical square miles; and they will draw the conclusion that the extent of the land must be less than fifty millions, or less than one-third. Having supposed that the land on the earth's surface contains about forty-five millions of geographical square miles, we distribute it into five great divisions, or continents, namely, Asia, America, Africa, Europe, and Oceania; observing at the same time, that the water is also divided into five great divisions, or oceans, namely, the Pacific, the Atlantic, the Indian, the Northern, and the Southern oceans. After learning from a map of the world the relative position, and comparative extent, of the great divisions of land and water into continents and oceans, they may be told that Asia is supposed to contain rather more than one-third of the land on the earth's surface; America, nearly one third; Africa, about one-fifth; and Europe and Oceania, about one-fifteenth each. Then comes the question how many millions of geographical square

"*Choose any well-levelled field, or bowling-green, on it place a globe two feet in diameter: this will represent the sun; Mercury will be represented by a grain of mustard seed on the circumference of a circle, 164 feet in diameter for its orbit: Venus, a pea, on a circle of 284 feet in diameter; the Earth, also a pea on a circle of 430 feet; Mars, a rather large pin's head on a circle of 654 feet; Vesta, Juno, Ceres, Pallas, grains of sand in orbits of from 1000 to 1200 feet; Jupiter, a moderately sized orange, in a circle nearly half a mile across; Saturn, a small orange, on a circle of four-fifths of a mile; and Uranus, a full sized cherry, or small plum, upon the circumference of a circle more than a mile and a half in diameter. As to getting correct notions on this subject, by drawing circles on paper, or, still worse, from those very childish toys called orreries, it is out of the question."—Sir J. Herschel's *Astronomy*.

miles in Asia? About fifteen; because Asia contains about the one-third of the land on the surface of the globe, which is supposed to amount to forty-five millions. Similar questions may be put regarding the other great divisions; and the answers will be, America contains nearly fifteen millions; Africa, about nine; Europe and Oceanica, about three each; because these divisions respectively constitute *a third, a ninth, and a fifteenth* of the whole land on the surface of the globe, that is, of forty-five millions of geographical square miles. Again, how much is Asia larger than Europe? *Five* times as large; for Asia contains about fifteen millions of geographical square miles, and Europe only about three millions. How much is Africa larger than Europe or Oceanica? *Three* times as large; for Africa contains about nine millions, (one-fifth of forty-five,) and Europe and Oceanica, only three each. Are any of the great divisions nearly equal in point of extent? Yes; America is nearly equal to Asia; and Europe to Oceanica.

These proportions are not only pleasing to the pupils, but are calculated to give them clear ideas of the comparative extent of the land and water on the earth's surface; and of the real and relative size of each of the great continents into which it is divided. Similar proportions may be discovered, and similar questions put respecting the several countries constituting the continents. For instance, if a pupil is informed that about one-third of Asia belongs, or is tributary to China, and nearly another third to Russia; he will at once conclude that each of these powers possesses a territory equal to about five millions of geographical square miles; and that all the other countries taken together, constitute the remaining third of Asia. This is a great and leading idea of Asia, and will be easily recollected. Again, of the remaining third of Asia, Arabia constitutes about the one-fifth, and Hindostan something more than another fifth. Arabia and Hindostan, therefore, contain each about one million of geographical square miles. They have also each of them, the same proportion to the continent of Asia that Europe has to the entire land upon the earth's surface, namely, as 1 to 15. With regard to the other countries a similar process is pursued.

General views with regard to the population of the world, are, in like manner, given to the pupils. For instance, the population of the world is supposed to amount to about 800 millions, which, if divided by 45,000,000, the number of geographical square miles contained in the earth's surface, gives about 18 persons to the square mile. The population of Asia amounts to about 390 millions; of Europe, to about 240; of Africa, to about 70; of America, to about 42; and of Oceanica, to about 20,300,000.—Asia, therefore, contains about one-half, and Europe nearly one-third of the population of the world. The absolute population of Asia is greater than that of Europe, but its relative is far less: for, divide the amount of the population of each by the number of square miles contained in the surface, and the quotient will give 80 persons to the square mile in Europe, and only 26 for Asia. In

the same way we proceed with regard to the other continents and countries.

The great *physical* features and natural boundaries of the several continents are next pointed out. For instance, South America is, generally speaking, divided by mountains and rivers into five great divisions, namely, the western declivity between the Andes and Pacific Ocean; the basin of the Orinoco; the basin of the Amazon; the basin of the Paraguay, and the southern extremity. In like manner, North America is divided into five great natural divisions, namely the basin of the Mississippi; the western declivity between the Rocky mountains and the Pacific Ocean; the northern declivity between the Great Lakes and the Arctic Ocean; the eastern declivity, between the Alleghany Mountains and the Atlantic; and the basin of the St. Lawrence.

When the pupils are made acquainted with the great outlines and natural divisions of the earth's surface, we proceed to *Political Geography*. In this branch of geography, also, we begin by giving general views and leading ideas; and having traced the great outlines, we fill them up gradually—and in every thing that concerns Great Britain and Ireland, as minutely as practicable. At every step we apply the principles of CLASSIFICATION and COMPARISON. Mountains, rivers, lakes, states, cities, &c., are classed and compared; which not only assists the memory of the pupils, but enables them to form correct conceptions of the real and relative magnitude of each. They are told, for instance, the height of a mountain, or the length of a river, with which they are familiar—or the population of the town in which they reside, and from these points the classifications and comparisons commence. The pupils are thus enabled to form correct and clear ideas of things which they do not know, by comparing them with things with which they are familiar.

[The above article is abridged from an "Outline of the methods of instruction pursued in the National Model Schools" (Ireland,) which will account for the frequent reference to Ireland. The plan is an excellent one, and is somewhat similar to the course adopted by Mrs. Willard in her "*Geography for Beginners*," and recommended in the "*Theory of Teaching*," and in a Series of Letters, (by the author we should think of the last named work,) to be found in the Third Volume of the Mass. Common School Journal.]

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